DOCUMENT RESUME

ED 299 587 CS 211 557

AUTHOR Rhodes, Robert W.
TITLE Standardized Testing of Minority Students: Navajo and Hopi Examples.
PUB DATE Nov 88
NOTE 12p.; Paper presented at the Annual Meeting of the National Council of Teachers of English (78th, St. Louis, MO, November 18-23, 1988).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *American Indians; *Cultural Context; Cultural Differences; Decision Making; Elementary Secondary Education; Minority Group Children; *Standardized Tests; Student Motivation; Test Bias; *Test Reliability; *Test Validity
IDENTIFIERS *Hopi (Tribe); *Navajo (Nation); World View

ABSTRACT

The Native American population scores farther from the norm on standardized tests than other minority populations. Native Americans are generally believed to be culturally more different from the rest of the United States population than other minorities are in that the Native American traditional cultures are more intact. This is particularly true of the Navajo and Hopi cultures observed in this study. One area thought to contribute to different reactions to the testing process and to lower Native American performance on standardized tests is the perception of reality or world view. While there has been a great deal of research, work, and controversy over cultural content bias on standardized tests, there has been relatively little done on cultural process bias of those same tests. It is essential, for the accurate evaluation of students, that tests and test results be used appropriately. Only in this manner can educators make a fair and accurate assessment of their students in order to facilitate their learning. It is becoming more apparent that the use of standardized tests for assessment of minority populations is questionable, both from a content and a process viewpoint. Therefore, it is essential that such tests, if they are used at all, are used in a sensitive and appropriate manner which takes into consideration that they may be inaccurate and may give absolutely misleading information concerning the students to whom they are administered. (Four tables of data are included.) (RAE)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED299587

Standardized Testing of Minority Students
Navajo and Hopi Examples

By

Robert W. Rhodes, Ed.D.
Northern Arizona University

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Robert Rhodes

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it

☐ Minor changes have been made to improve reproduction quality

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

Presented at
1988 Annual Convention
National Council of Teachers of English
St. Louis
November 19,1988

CS211557

The question of standardized testing of minority students is a perplexing problem. For some reason, minority students have consistently scored below national norms on standardized tests of achievement. Analysis of tests such as the Iowa Test of Basic Skills (ITBS), the California Achievement Test (CAT), the Stanford Achievement Test (SAT-7), the Stanford Test of Academic Skills (TASK), the Pre-Professional Skills Test (PPST), and others, show a consistent pattern in that scores of minority students are below national norms. Generally, Blacks and Hispanic Americans are several percentage points below Anglos, and Native Americans are several percentage points below the Blacks and Hispanics. See table 1 for specific examples.

Table 1

Arizona Public Schools
Achievement Test Scores, 1987-8 School Year
(Bishop, 1988)

Reading
Percentile Rank

Grade	1	2	3	4	5	6	7	8	9	10	11	12
National Norm	54	53	52	52	52	50	50	48	50	50	50	50
State Norm	49	58	51	53	55	52	51	48	57	52	52	56
White	57	67	58	60	63	61	58	57	69	61	61	64
Black	35	42	36	39	42	38	37	33	42	38	37	37
Hispanic	36	40	37	39	41	38	37	34	43	38	35	39
Indian	29	32	29	32	34	30	29	28	32	28	25	25
Asian	58	64	57	60	64	64	56	56	66	55	51	54

Analysis of the scores of Arizona test takers on the PPST, which is required at the state universities for entrance to teacher training programs, showed similar results. See Table 2.

Table 2

PPST Scores by ethnicity

Percent passing

	Indian Reserv	Indian Urban	Hispanic Rural	Hispanic Urban	Anglo Rural	Anglo Urban
Reading	24	52	58	59	79	78
Math	33	48	69	62	82	81
Writing	20	55	50	60	79	82

Notice that Table 2 also shows a breakdown for rural and urban populations within each ethnicity. The Arizona numbers for Blacks taking the PPST were insufficient for statistical purposes. There is little difference between urban and rural populations for Anglos and Hispanics but significant differences (math, $p=.05$, reading and writing, $p=.02$) between reservation and urban Indians. In trying to find a reasonable explanation for the discrepancies by race, rurality and urbanality by themselves were not adequate. However, when combined with culture and the differences for Indians on and off the reservations, some areas for investigation became apparent.

An analysis of ITBS, SAT-7, and TASK showed similar discrepancies between town and reservation Indians in Arizona

It is felt that by looking at possible reasons for poor performance on standardized tests by Native Americans, some results may be reached which may be generalizable to other minority populations. The Native American population, though, scores farther from the norm than other minority populations and also is generally believed to be culturally more different from the normal United States population than other minorities in that the Native American traditional cultures are more intact. This is particularly true of the Navajo and Hopi cultures observed. Therefore, possible reasons for the differences may be easier to discover. With the Native American population, there is also considerable discussion about

the effect that living in off-reservation towns is having on Indian Culture. Observations and testing, then, were done primarily on and near the Navajo and Hopi Reservations in northeastern Arizona, realizing that generalizations to other Indian populations would have to be confirmed as would generalizations to other minority populations.

World View

One area that was thought to contribute to the testing process and to Native American performance on standardized tests is the perception of reality or world view. Witherspoon (1977) states that some English sentences indicate relationships which are not possible in the Navajo worldview. For example, where Anglos generally deal with reality in terms of fiction and non-fiction (truth and fiction), Navajos and Hopis have three types of reality. They have truth, the same as the Anglo truth. They also have mythology, which encompasses things which used to be true but may not be true any more. For example, in coyote (or bear, or raven, or other animals for different tribes) stories, the coyote used to talk to human beings, but he doesn't do that any more. Spider grandmother used to do the things described in the stories, but she doesn't do such things now. In other words, mythology is historically true, but not necessarily currently true. Thus it is useful, but not current. The third category is "lies." Not fiction, because fiction as is known in Anglo culture does not exist. If something is not truth or mythology, it is "lies", with many of the negative implications of the word.

In thinking about the matter of categories of reality on the reservation, it would seem that there would be a need for a transitional category which would not be defined as any of the preceeding three. Alternatively, perhaps information can easily transfer from one category to another as its validity is determined. There is a great deal of new information which an individual constantly receives from various sources. It is not always possible to determine quickly which of the three categories is appropriate for new observations. Until such time as information can be categorized as truth by being compatible with other truths already known, or as mythology by being compatible with other factors of that category, it would have to be temporarily categorized as either lies or as unknown. Neither of these last two categories would be usable for the purpose of developing theories, adding to knowledge, or developing answers to tests.

The theory that conflicting world view could cause problems in choosing correct answers on a standardized test was checked on 127 Navajos and Hopis living on and off the reservations and 38 non-Indians. They were given a Paul Bunyon story in which the Grand Canyon was formed by Paul dragging his ax as he walked across Arizona. The subjects were then told to choose the best answer, based on the story, from choices given. To the question "What formed the Grand Canyon?" one choice was "Paul Bunyon's ax" and another was "erosion from the Colorado and Little Colorado Rivers." Table 3 shows the results.

Table 3
Percents

	On Res Indian	Off Res Indian	Anglo
Paul's Ax	65	77	92
Erosion	35	23	8

Significance: p=.007

It is apparent that the Anglos were more able to use the reality of the story than were the reservation Indians, with town Indians scoring between the other two groups.

It is interesting to note that the word "if" does not translate directly in the Hopi language, nor in the Navajo language where it is used in a cause and effect relationship. That does not imply that these languages cannot deal with causality. Cause and effect are understood and used in both languages, but in a much less direct way. There is not a direct implication of one to one correlation in cause and effect. The field is left much more open to other possible causes, though the listed cause is recognized as having an effect also. For example, in Hopi, the translation for "If my check comes in the mail, then I will go to town," comes out "My check might come in the mail and I might go to town." There is a relationship between the two occurrences, but not a direct correlation.

In a question requiring hypothesizing from an "if...then" situation, reservation Navajos and Hopis scored significantly lower than those from towns. The question was "If 2 + 2 = 5, then 5 - 2 = ?" Results are shown in Table 4.

Table 4
Percents

Answer	On Res Indians	Off Res Indians	Anglo
2	51	70	83
3	49	30	17

Significance: p=.002

The implication of these results is that reservation Navajos and Hopis have a more difficult time with non-true hypotheses and with cause and effect relationships worded in an "if...then" fashion.

Decision Making

Another factor which is believed to have an effect on Native American performance on standardized tests is their decision making process. Where the test requires quick answers, guessing, and risk taking, the reservation Native American has learned to make decisions slowly but surely, and be correct the first time. He will also tend to want to combine elements from several possible correct answers into an appropriate answer rather than choose only one from the choices in a multiple choice situation.

Judeth Kleinfeld (1973) relates a situation concerning the Eskimo intellectual process in finding his way in the featureless Arctic

environment. Imagine that such an Eskimo is leading a hunting party out on the ice several miles from home. It is getting dark, a storm is approaching, and they have no more food, but the leader has become disoriented and is not sure which way is the right way home. Compare his decision making process with that of someone disoriented in a town and not sure which way to go. The town person can flip a coin and set out in one direction. If he is wrong, he will simply turn around and go the other way when he discovers his error. The Eskimo has a much more serious dilemma. If he chooses wrong, he and the others in his party will die. A flip of a coin does not give adequate odds of being correct in this situation. The Eskimo leader wants a much better chance of being correct the first time, so he waits and gathers more information and other opinions before making a choice. When he finally does make a choice, it will have a 95 to 99 percent liklihood of being correct. The situation demands such a process.

On the Navajo and Hopi Reservations there are vast areas without water. If an individual becomes disoriented herding sheep he will more likely utilize the Eskimo process to get to water than the town process. Lives and comfort depend on it. Even if one gets lost driving on the thousands of miles of dirt roads on these reservations, one makes decisions more slowly and more surely as the gas tank approaches empty. Upon reaching a paved road, one will be careful in deciding if gas is closer going left or going right. Until adequate information is available to reach a decision, the driver waits, looks around, asks others, and proceeds much like the Eskimo. When he is as sure as he can be, he will turn in the direction he feels is correct.

Unfortunately this process is slower than most timed multiple choice tests allow. Also, it can be seen that guessing is inappropriate in the life situations described, whereas it could raise scores on the test.

The multiple choice aspect poses an additional problem. In most reservation situations, it is important that people work together to be able to survive. For ceremonial activities as well as many everyday tasks, more people are needed than are available in an immediate family. The implication of this for decision making is that most decisions are made by consensus rather than by majority vote. The decision making process is one of discussing all aspects of a problem and getting input from all who

want to contribute. Then a plan of action is derived from all of the input in order that everyone who has contributed can feel that they are a part of, and will help to work on, the solution. If solutions were developed by voting, those who lost the vote would be less likely to help in overcoming the problem. They would feel less sense of belonging to the group. By the consensus process, even if the solution is somewhat less effective, everyone feels a strong sense of group and will work together.

The result of this culturally and environmentally necessary process for the Native American is reluctance to eliminate choices from consideration in a multiple choice test. He would be much more comfortable combining elements from several choices into one which would work. The idea that any incorrect word makes the whole choice wrong does not fit with his process. He, instead, looks at the portions of the choice which are correct. Also, in his way of decision making, a choice is best if it satisfies the most people, not if it is most efficient or correct.

Motivation

Donna Deyhle (1983) has done interesting work with young Navajo students which indicates that they are much more interested in the process of test taking than they are in the product of the test until about third grade. Beginning at that time, standardized test scores for Native Americans start to deteriorate. Students become aware that they are being judged on their test scores, and various factors cause those scores to be low, giving them problems in self esteem. Older students, then, begin to dislike tests. However, on teacher given tests, they can at least see a result of the testing process and feedback is often given to the student which can result in better performance at a later date. In the case of most standardized tests, results are not given back to the student until much later. By then the student is not able to apply the information gained from the results to the improvement of test performance. In the case of achievement testing in schools, results are usually not back to the school for several months and often those results are never given to the student. The student, then, has be perception that the results of the test will not be used, so it really does not matter if he performs well or not. The results of the test are not related, in the mind of the student, to graduation, college entrance, jobs, or other goals. Native Americans seem to view such standardized test in isolation rather than as goal related.

Also, goals for Native Americans are much less firmly entrenched than are goals for Anglos, somewhat in the manner of cause and effect concepts discussed above. The language and the thinking of Navajos and Hopis is oriented toward the present and the past where Anglos tend to think and talk more in present and future. Long term goal setting is much more of an Anglo attribute than a Native American one. Native Americans are much more likely to let external factors modify their goals where Anglos are more likely to ignore external factors in their goal attainment. Standardized tests are seen as moderately to very important factors in goal achievement for Anglos, and therefore have some intrinsic motivation even though results may not be available for some time. For the Native American, the goal is less well defined, so the test results are not intrinsically motivating. Nor are the results particularly useful, so performance on the test is not relevant to anything seen as real.

Test Bias

The question of test bias is always valid when dealing with an instrument developed by one culture, primarily for that culture, and yet administered to individuals of another culture. Even an item so seemingly innocuous as the names of the individuals in stories become an element which may have an effect on test takers. Hopis have verbalized often that the Anglo names which they now use and which were given to their grandparents when they entered school are not meaningful names and are difficult to identify with. In a society which is concerned about both blood and clan relationships and where names have clan implications, a name of Joseph or Helen tells much less about the individual than a name of Poleyquaptewa or Quamahongnewa. The Hopi names have distinction and clan implications. They tell something about the person and give the reader something to hang on to. The Anglo names don't, according to Hopi informants.

Cultural test bias most often refers to content bias. This problem is present in most standardized tests which are given to Native American students, particularly those raised on reservations. However, the case for process test bias, as presented above, is at least as strong. Much further work needs to be done to find out really what is being tested by standardized tests when they are administered to minority populations. It appears that conclusions drawn from such test results must be derived very carefully, and with great concern for both the process and content of

such tests. Process bias, while not nearly as thoroughly researched as content bias, may be at least an equally significant problem in the use of standardized tests on minority students.

Summary

While there has been a great deal of research, work, and controversy over cultural content bias on standardized tests, there has been relatively little done on cultural process bias of those same tests. It is essential, for the accurate evaluation of students, that tests and test results be used appropriately. Only in this manner can educators make a fair and accurate assessment of their students in order to facilitate their learning. It is becoming more apparent that the use of standardized tests for assessment of minority populations is questionable, both from a content and a process viewpoint. Therefore, it is essential that such tests, if they are used at all, are used in a sensitive and appropriate manner which takes into consideration that they may be inaccurate and may give absolutely misleading information concerning the students on which they are administered. The case for alternative assessment means is certainly strengthened.

Bibliography

Allen, Paula Gunn
1974 "The Mythopoeic Vision in Native American Literature: The Problem of Myth." American Indian and Research Journal, pp. 3-16.

Bishop, C. Diane
1988 Statewide Report for Arizona Pupil Achievement Testing. Phoenix: Arizona Department of Education.

Cazden, Courtney B. and Vera P. John
1971 "Learning in American Indian Children." in Wax, Murray L. et al, eds. Anthropological Perspectives on Education, New York: Basic Books, Inc.

Deyhle, Donna.
1983 "Measuring Success and Failure in the Classroom: Teacher Communication about Tests and the Understandings of Young Navajo Students." Peabody Journal of Education, 61:1, Fall, pp. 67-85.

Kleinfeld, J.S.
1973 "Intellectual Strengths in Culturally Different Groups: An Eskimo Illustration." Review of Educational Research, 43:3, pp. 341-359.

Wax, Rosalie and Murray
1962 "The Magical World View." Journal for the Scientific Study of Religion, v. 1, pp. 179-188.

Witherspoon, Gary.
1977 Language and Art in the Navajo Universe. Ann Arbor, Michigan: The University of Michigan Press.

Worth, Sol and John Adair
1972 Through Navajo Eyes: An Exploration in Film Communication and Anthropology. Bloomington, Indiana: Indiana University Press.